V&V Reference Report
L2 ASCDS Version : 8.4.5

Observation 2284 - L2 Version 4
Chandra X-Ray Center

L2 Processing Date : Oct 19 2012

Contents

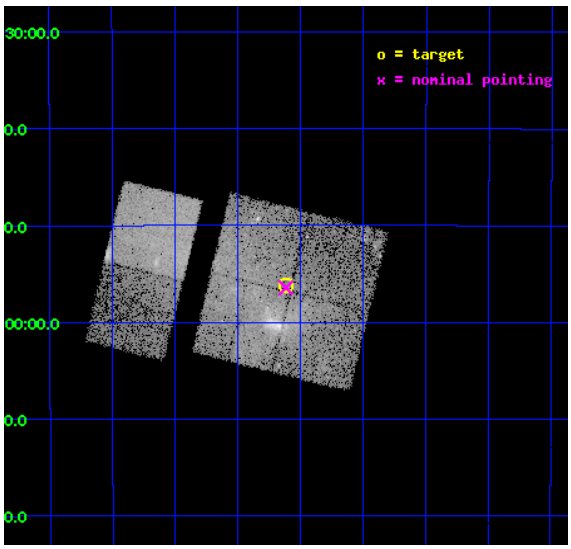
1 Front **2**

2 OBI **3**
2.1 OBI . . . 3
2.1.1 Images . . . 3
2.1.2 Bias . . . 3
2.1.3 Parameters . . . 4
2.1.4 Events . . . 4
2.2 Compared Parameters . . . 5
2.3 Aspect . . . 6
2.4 Star Slots . . . 9
2.4.1 Slot 3 . . . 9
2.4.2 Slot 4 . . . 10
2.4.3 Slot 5 . . . 11
2.4.4 Slot 6 . . . 12
2.4.5 Slot 7 . . . 13
2.5 FID Slots . . . 14
2.5.1 Slot 0 . . . 14
2.5.2 Slot 1 . . . 15
2.5.3 Slot 2 . . . 16

A Summary **17**
A.1 Status . . . 17
A.2 Comments . . . 17

1 Front

seq_num	900111	Sequence number
obs_id	2284	Observation id
title	CHANDRA SURVEY OF THE GALACTIC RIDGE AROUND THE MILKY WAY CENTER	P
observer	Prof. Q. Daniel Wang	Principal investigator
object	GCS 14	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	266.405	Observer's specified target RA [deg]
dec_targ	-28.9362	Observer's specified target Dec [deg]
ra_nom	266.40415121249	Nominal RA [deg]
dec_nom	-28.940896196268	Nominal Dec [deg]
roll_nom	283.80728276948	Nominal Roll [deg]
revision	4	Processing version of data
ontime	10758.400010005	Sum of GTIs [s]
livetime	10622.170671147	Livetime [s]
ontime0	10758.400010005	Sum of GTIs [s]
ontime1	10758.400010005	Sum of GTIs [s]
ontime2	10758.400010005	Sum of GTIs [s]
ontime3	10758.400010005	Sum of GTIs [s]
ontime6	10758.400010005	Sum of GTIs [s]
ontime7	10758.400010005	Sum of GTIs [s]
l2events	86498	Number of level 2 events

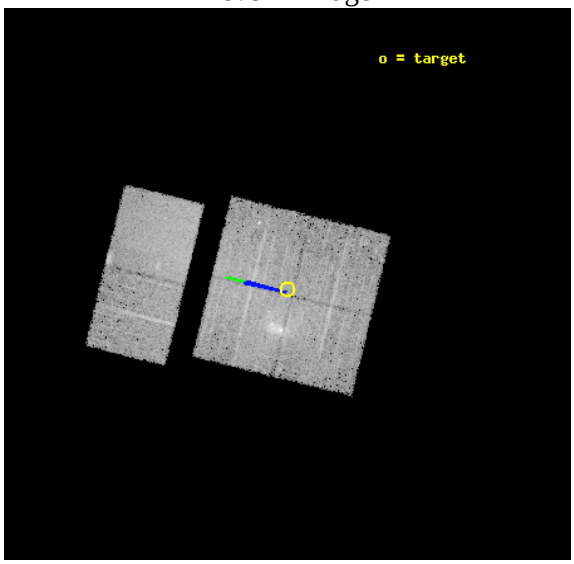


2 OBI

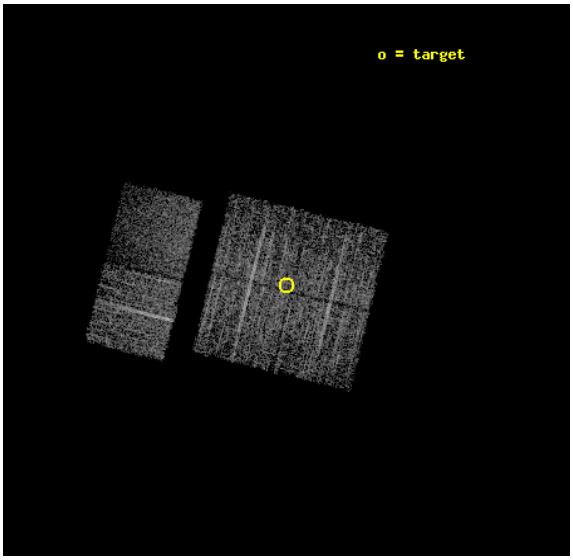
2.1 OBI

2.1.1 Images

Level 1 Image

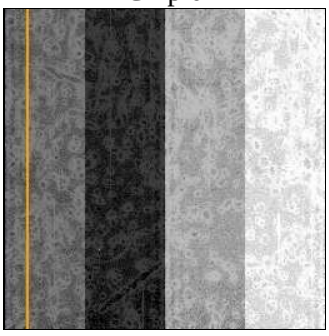


Level 1 Bad Events

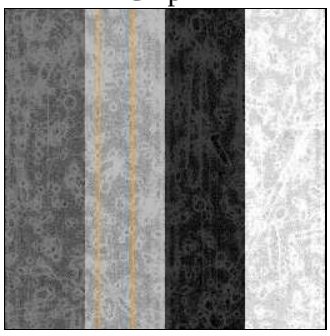


2.1.2 Bias

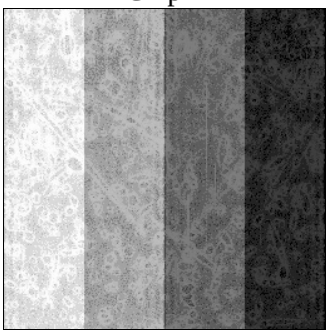
Chip 0



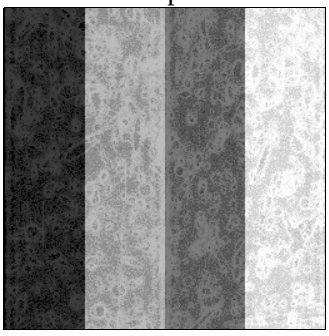
Chip 1



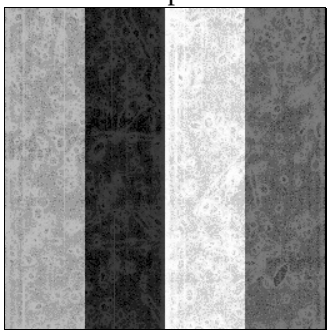
Chip 2



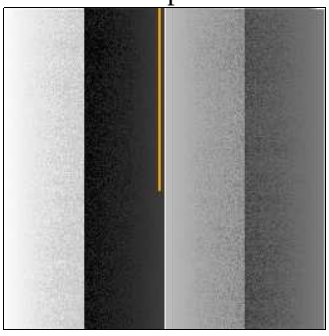
Chip 3



Chip 6



Chip 7



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	8.4.5	Processing system revision
caldbver	4.5.2	
date	2012-10-19T18:41:24	Date and time of file creation
revision	4	Processing version of data

sched_exp_time	11000.000000	[s] Scheduled observation exposure time
ontime	10758.400010005	Sum of GTIs [s]
ontime0	10758.400010005	Sum of GTIs [s]
ontime1	10758.400010005	Sum of GTIs [s]
ontime2	10758.400010005	Sum of GTIs [s]
ontime3	10758.400010005	Sum of GTIs [s]
ontime6	10758.400010005	Sum of GTIs [s]
ontime7	10758.400010005	Sum of GTIs [s]
l1events	225052	Number of level 1 events

2.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
level 1 events	35336	30115	46926	37219	31861	43595
rejected events	22121	21821	24577	22968	24762	16938
rejected %	62%	72%	52%	61%	77%	38%

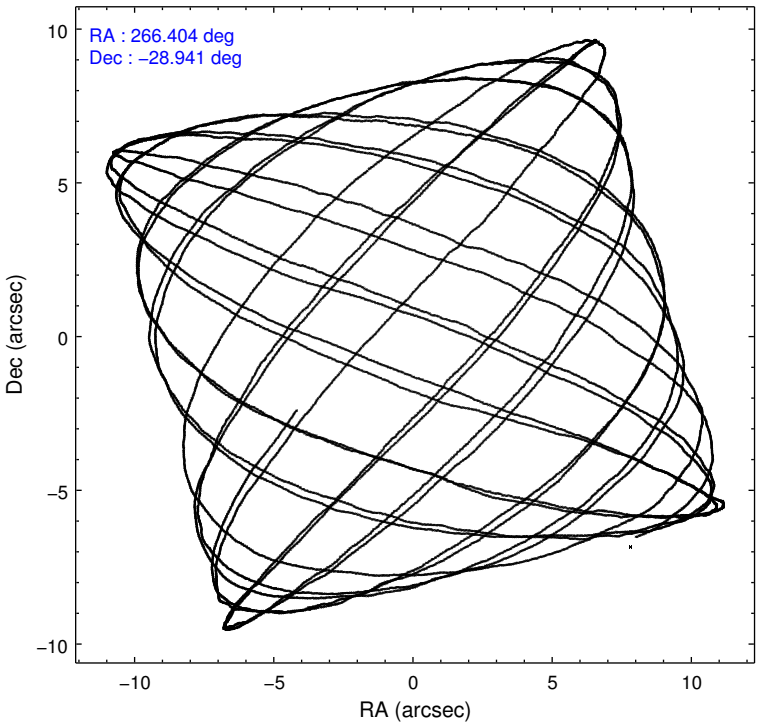
	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
grade 0 events	8114	4460	14446	8806	3841	3254
	22%	14%	30%	23%	12%	7%
grade 1 events	55	38	75	57	25	38
	0%	0%	0%	0%	0%	0%
grade 2 events	2144	1423	3376	2238	1211	5737
	6%	4%	7%	6%	3%	13%
grade 3 events	763	650	1248	847	507	2692
	2%	2%	2%	2%	1%	6%
grade 4 events	801	633	1226	859	520	2635
	2%	2%	2%	2%	1%	6%
grade 5 events	1117	1216	1066	1300	1320	4019
	3%	4%	2%	3%	4%	9%
grade 6 events	1397	1131	2058	1505	1021	12348
	3%	3%	4%	4%	3%	28%
grade 7 events	20945	20564	23431	21607	23416	12872
	59%	68%	49%	58%	73%	29%

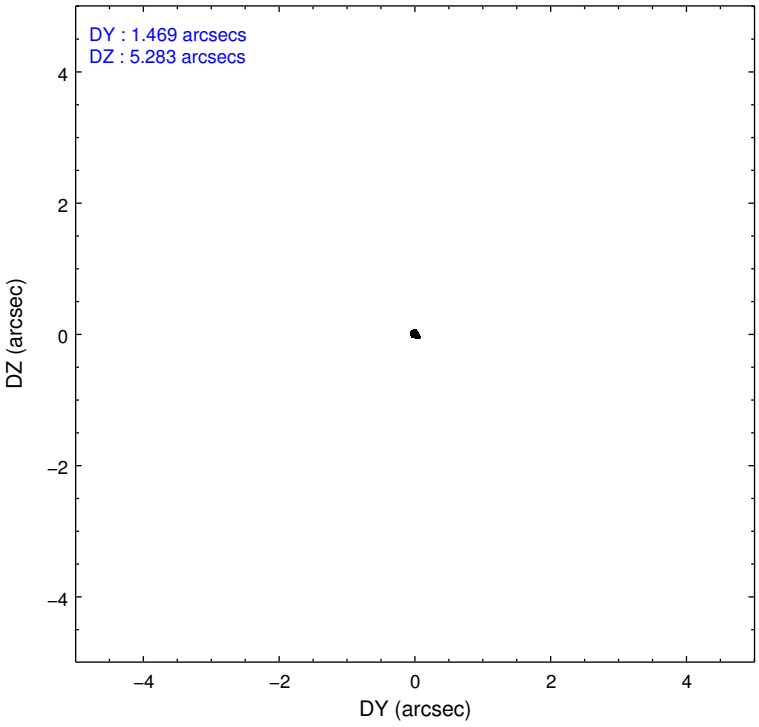
2.2 Compared Parameters

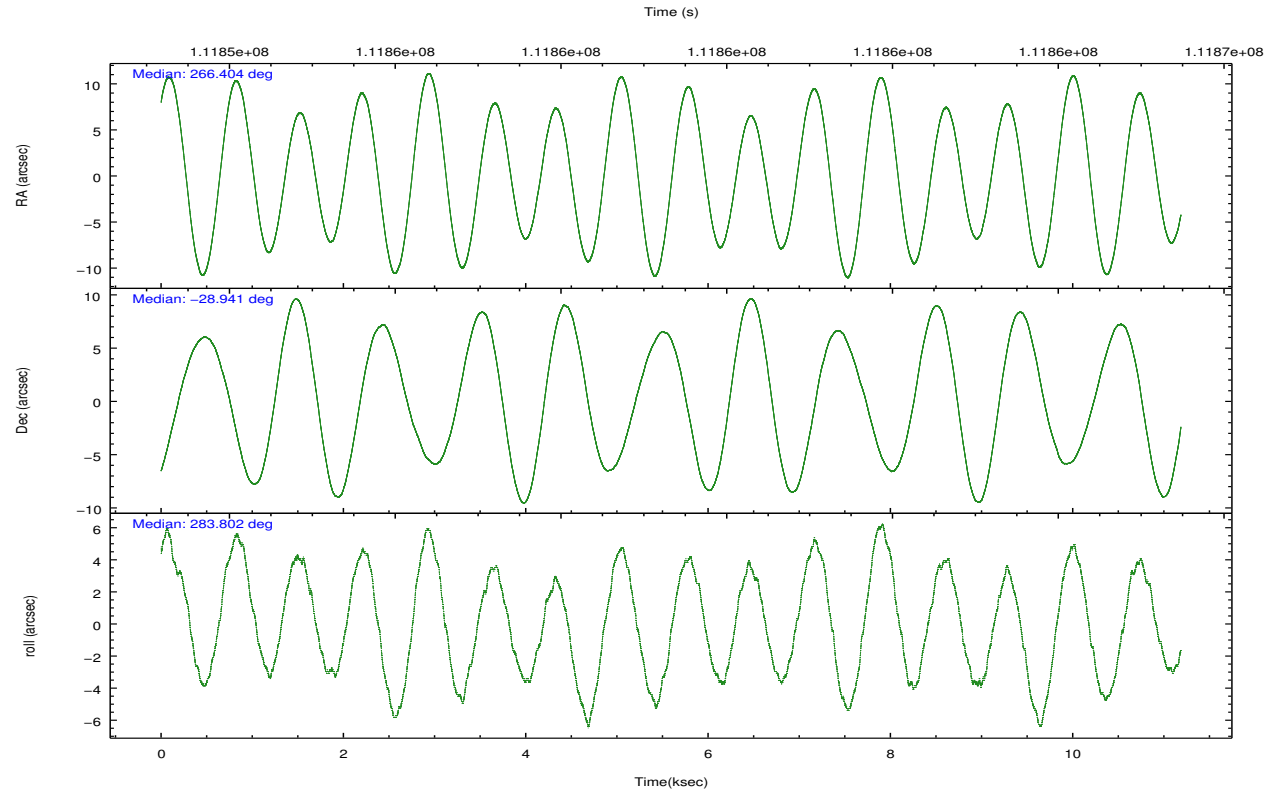
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-012367	ACIS-012367
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	266.382411	266.4041512124912
[deg] Pointing Dec	-28.921086	-28.94089619626754
[deg] Pointing Roll	283.588074	283.8072827694816
[deg] Roll angle	283.600000	283.600000
[deg] Roll tolerance	2.000000	2.000000
Roll constraint allows 180D rotation	N	N
[mm] SIM focus pos	-0.782348	-0.7809083437167272
[mm] SIM defocus	0	0.001439871863259334
[mm] SIM translation stage pos	-233.592463	-233.5874344608287
[mm] SIM translation stage offset	0	-0.005018542100998502
[s] Observation start time (MET)	111853924.184000	111853548.16613
Observation start date	2001-07-18T14:31:00	2001-07-18T14:25:48
[s] Observation end time (MET)	111864924.184000	111865058.40408
Observation end date	2001-07-18T17:34:20	2001-07-18T17:37:38
Read mode	TIMED	TIMED

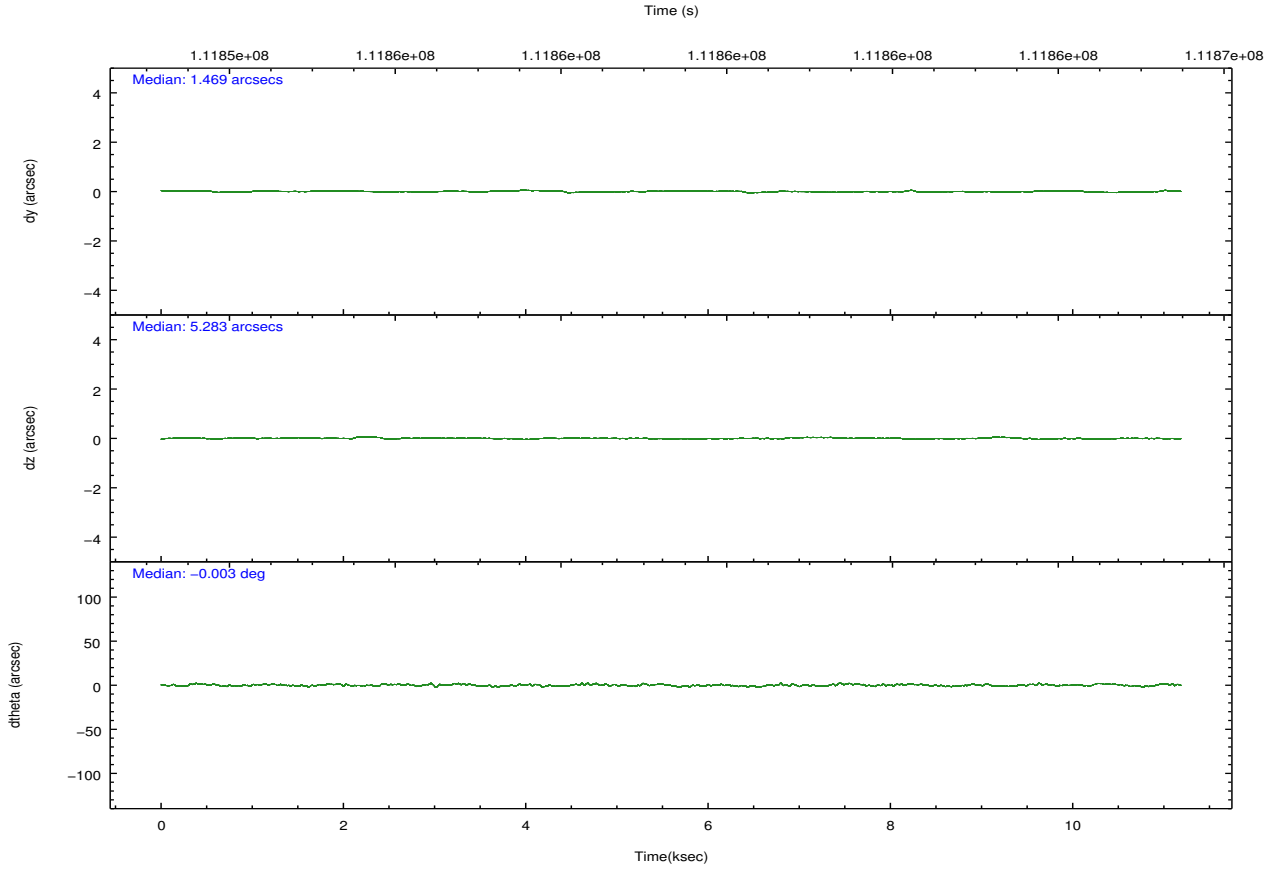
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.2

2.3 Aspect


RA : 266.404 deg
Dec : −28.941 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
−5
0
5
10


DY : 1.469 arcsecs
DZ : 5.283 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
1.1185e+08
1.1186e+08
1.1186e+08
1.1186e+08
1.1186e+08
1.1186e+08
1.1187e+08
Median: 266.404 deg
RA (arcsec)
Median: −28.941 deg
Dec (arcsec)
Median: 283.802 deg
roll (arcsec)
Time(ksec)

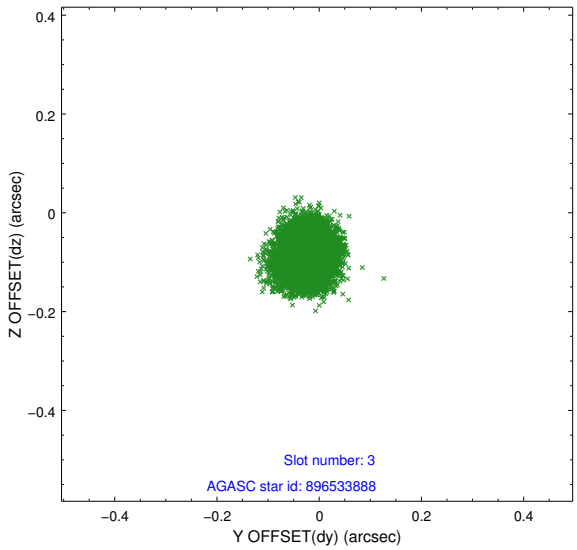

Time (s)
1.1185e+08
1.1186e+08
1.1186e+08
1.1186e+08
1.1186e+08
1.1186e+08
1.1187e+08
Median: 1.469 arcsecs
dy (arcsec)
Median: 5.283 arcsecs
dz (arcsec)
Median: −0.003 deg
dtheta (arcsec)
Time(ksec)

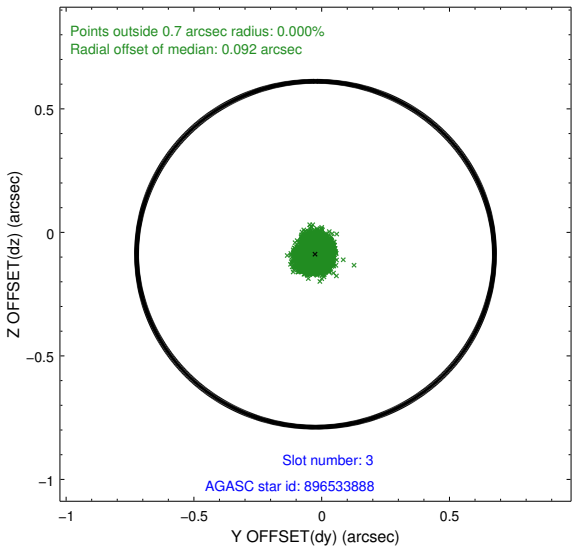
Slot Statistics

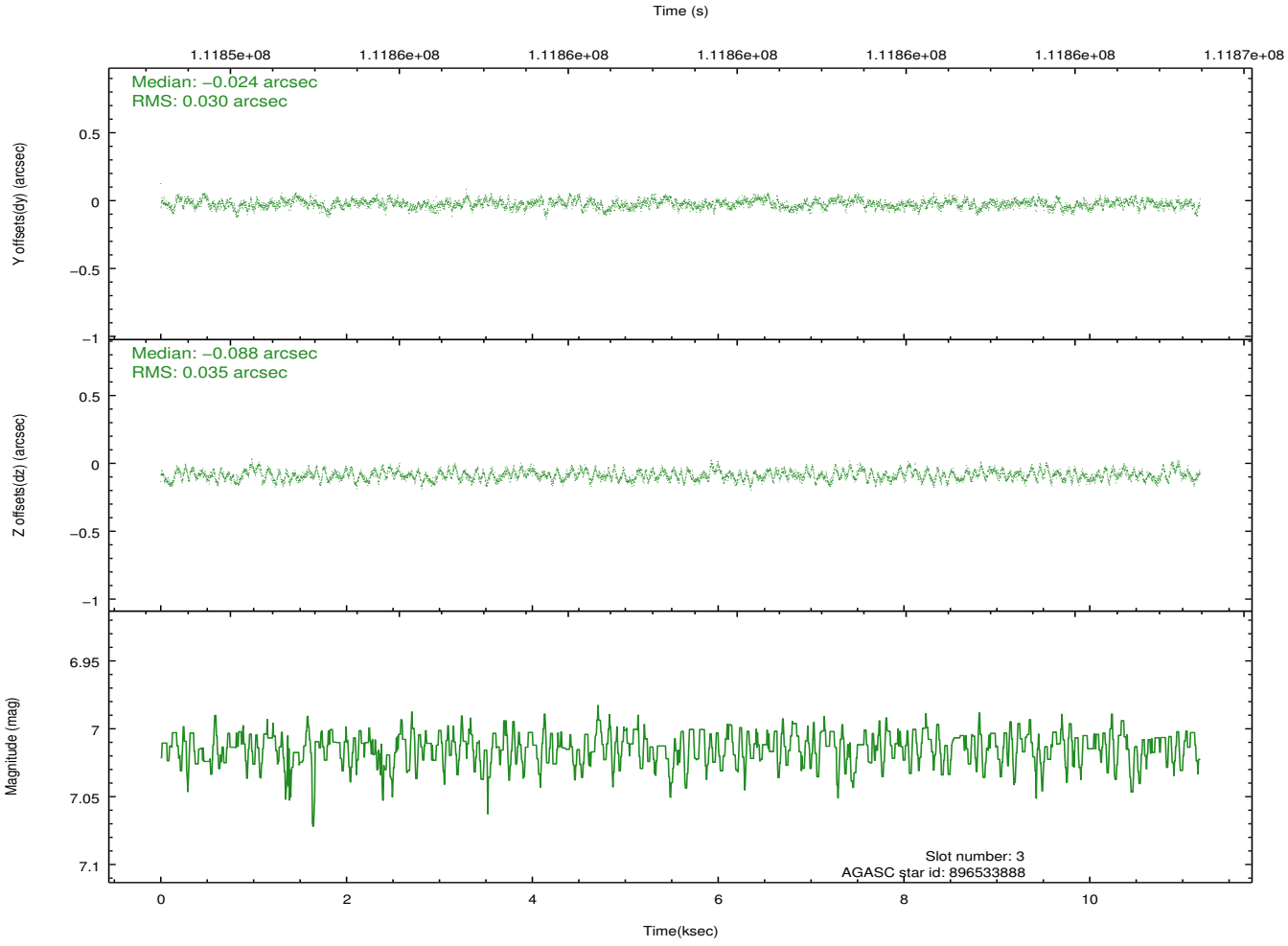
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	7.15	2729	-0.023	-0.045	0.015	0.024	0.000000	0.000000	-755.82	-835.05
1	FID	ACIS-I-4	7.19	2729	-0.030	0.035	0.009	0.016	0.000000	0.000000	2158.00	1071.01
2	FID	ACIS-I-5	7.23	2729	-0.049	0.080	0.017	0.026	0.000000	0.000000	-1809.10	1069.38
3	GUIDE	896533888	7.01	5458	-0.024	-0.088	0.050	0.078	266.666434	-29.392757	1861.29	467.26
4	GUIDE	896537176	8.02	5458	-0.045	0.011	0.052	0.084	266.498272	-28.678259	-762.80	561.48
5	GUIDE	896540808	7.51	5458	-0.054	0.060	0.047	0.077	265.985401	-29.308604	1065.73	-1539.00
6	GUIDE	896536320	8.96	5457	0.129	0.047	0.062	0.104	266.369048	-29.307026	1341.51	-366.90
7	GUIDE	896535464	9.35	5456	-0.009	-0.031	0.089	0.145	266.962550	-28.408631	-1356.76	2218.20

2.4 Star Slots

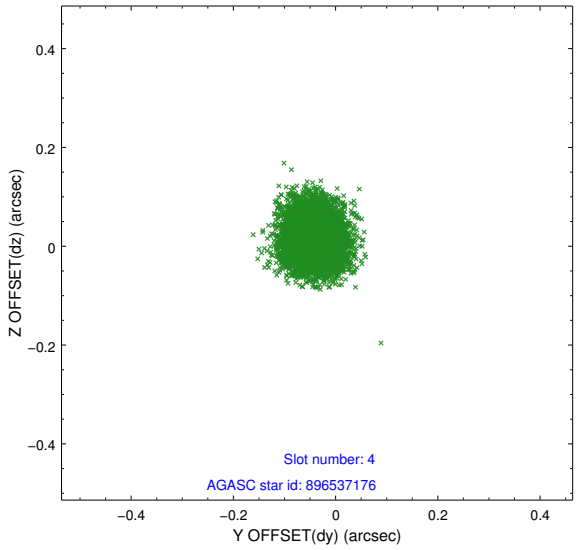
2.4.1 Slot 3

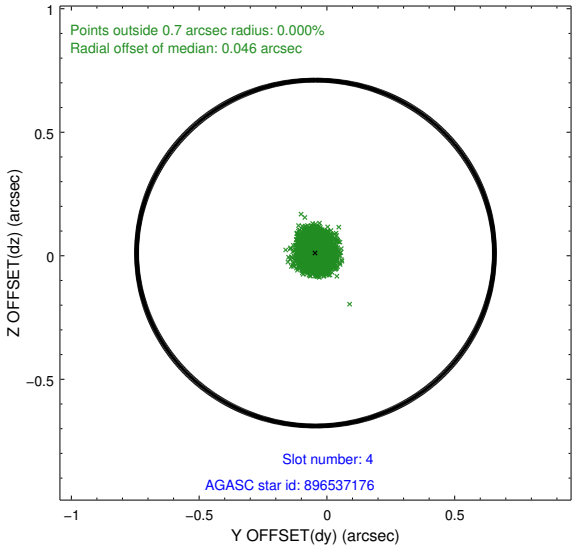


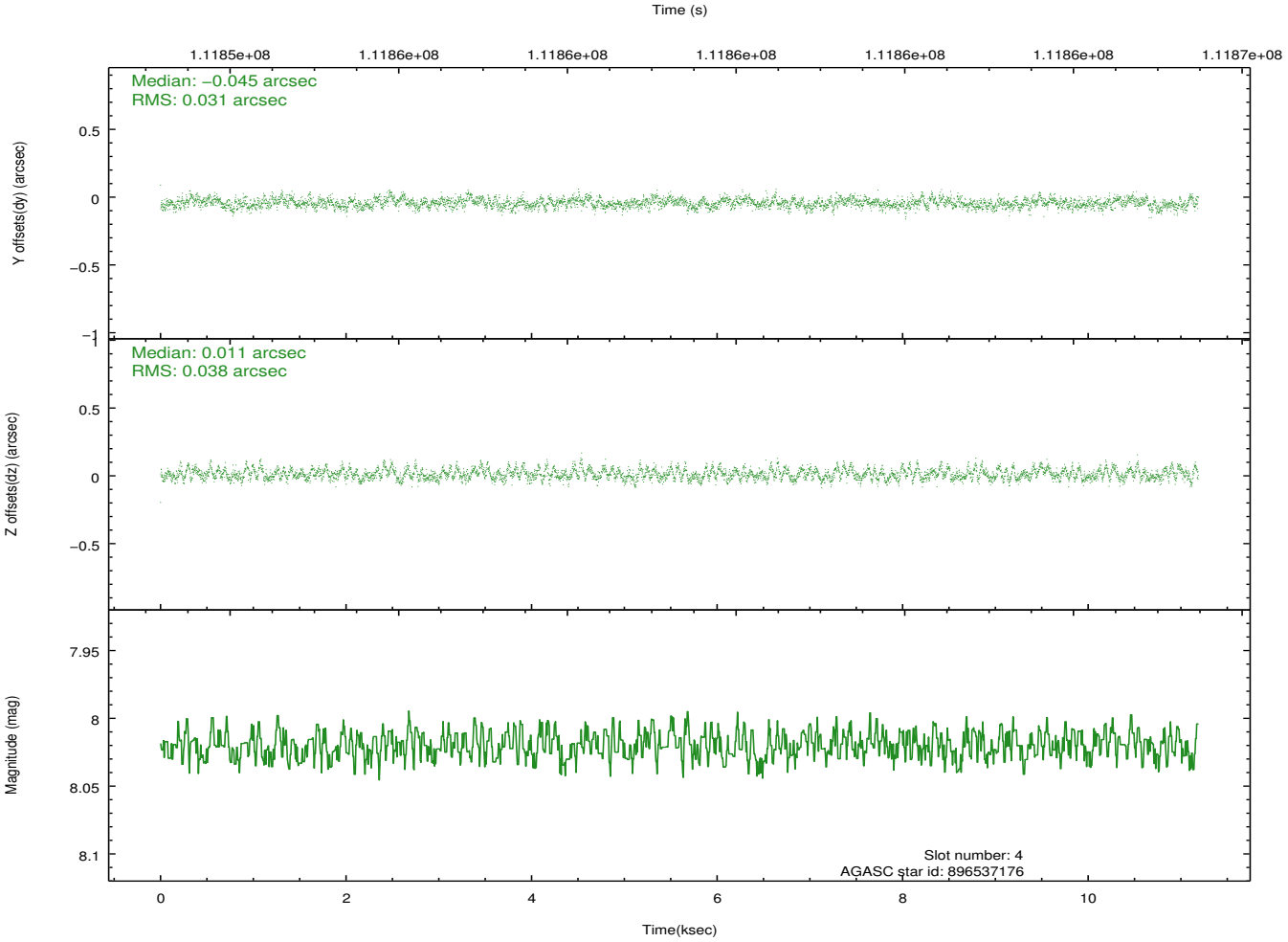




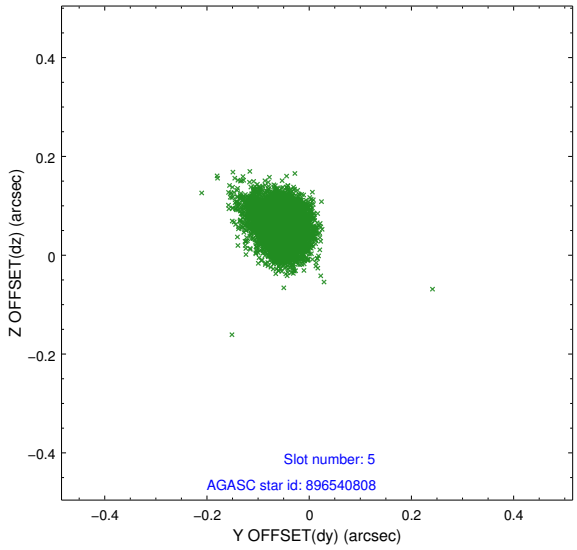
2.4.2 Slot 4

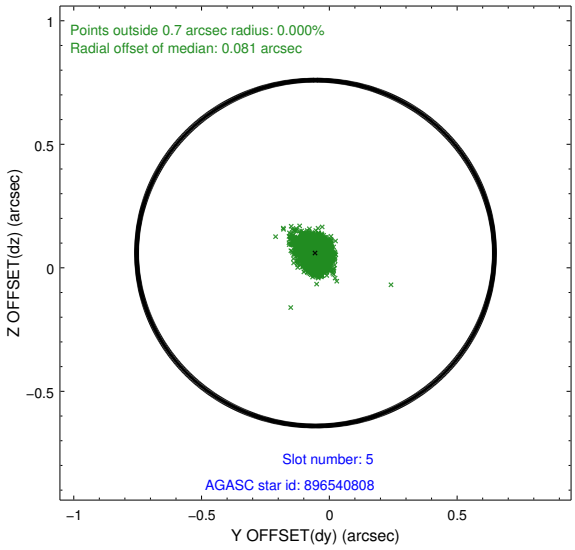

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 896537176

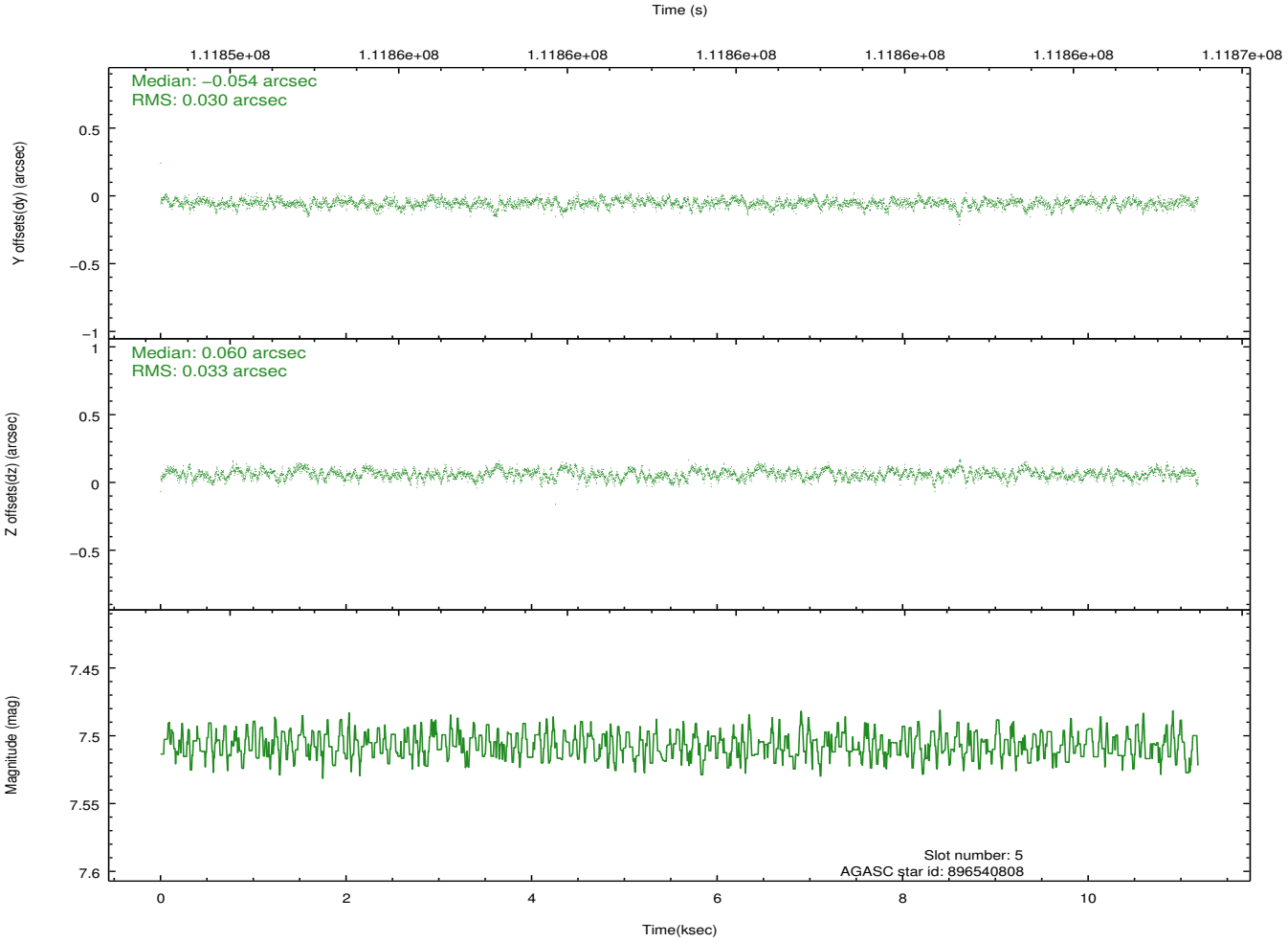

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.046 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 896537176


Time (s)
Median: −0.045 arcsec
RMS: 0.031 arcsec
Y offsets(dy) (arcsec)
Median: 0.011 arcsec
RMS: 0.038 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 896537176
Time(ksec)

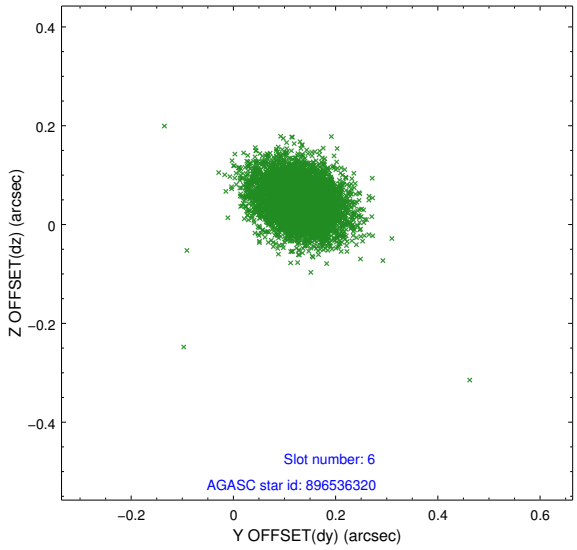
2.4.3 Slot 5

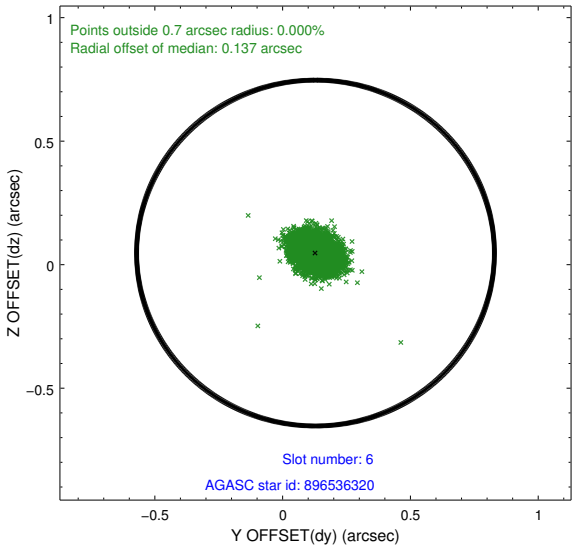

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 896540808

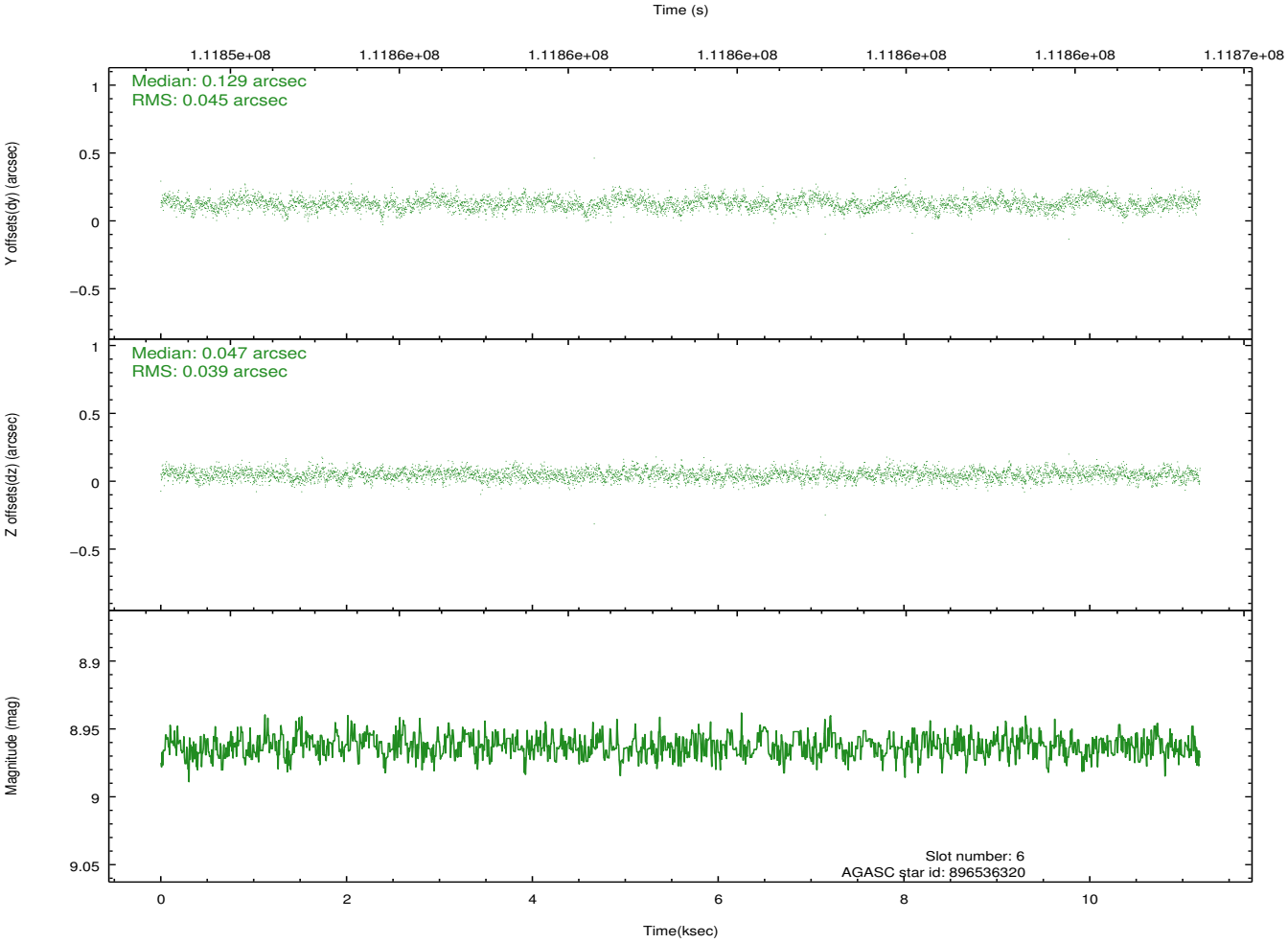

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.081 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 896540808


Time (s)
Median: −0.054 arcsec
RMS: 0.030 arcsec
Y offsets(dy) (arcsec)
Median: 0.060 arcsec
RMS: 0.033 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 896540808
Time(ksec)

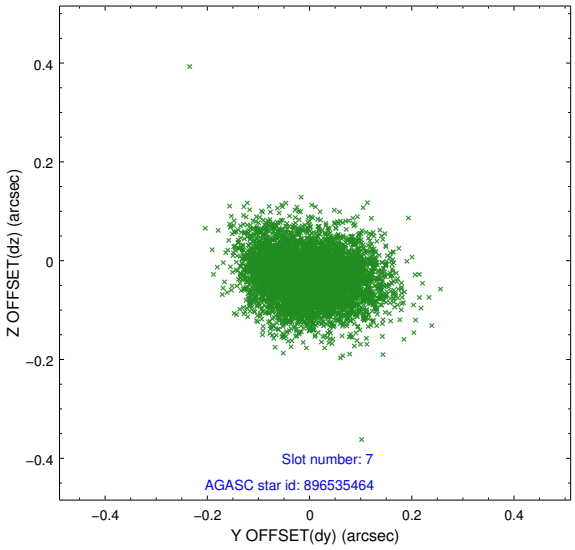
2.4.4 Slot 6

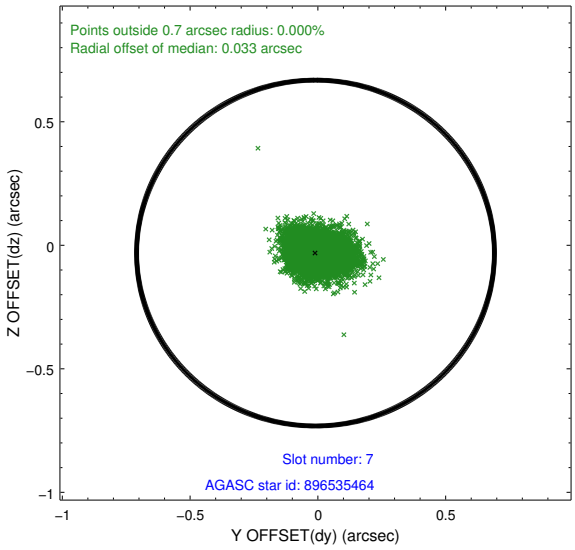

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 896536320

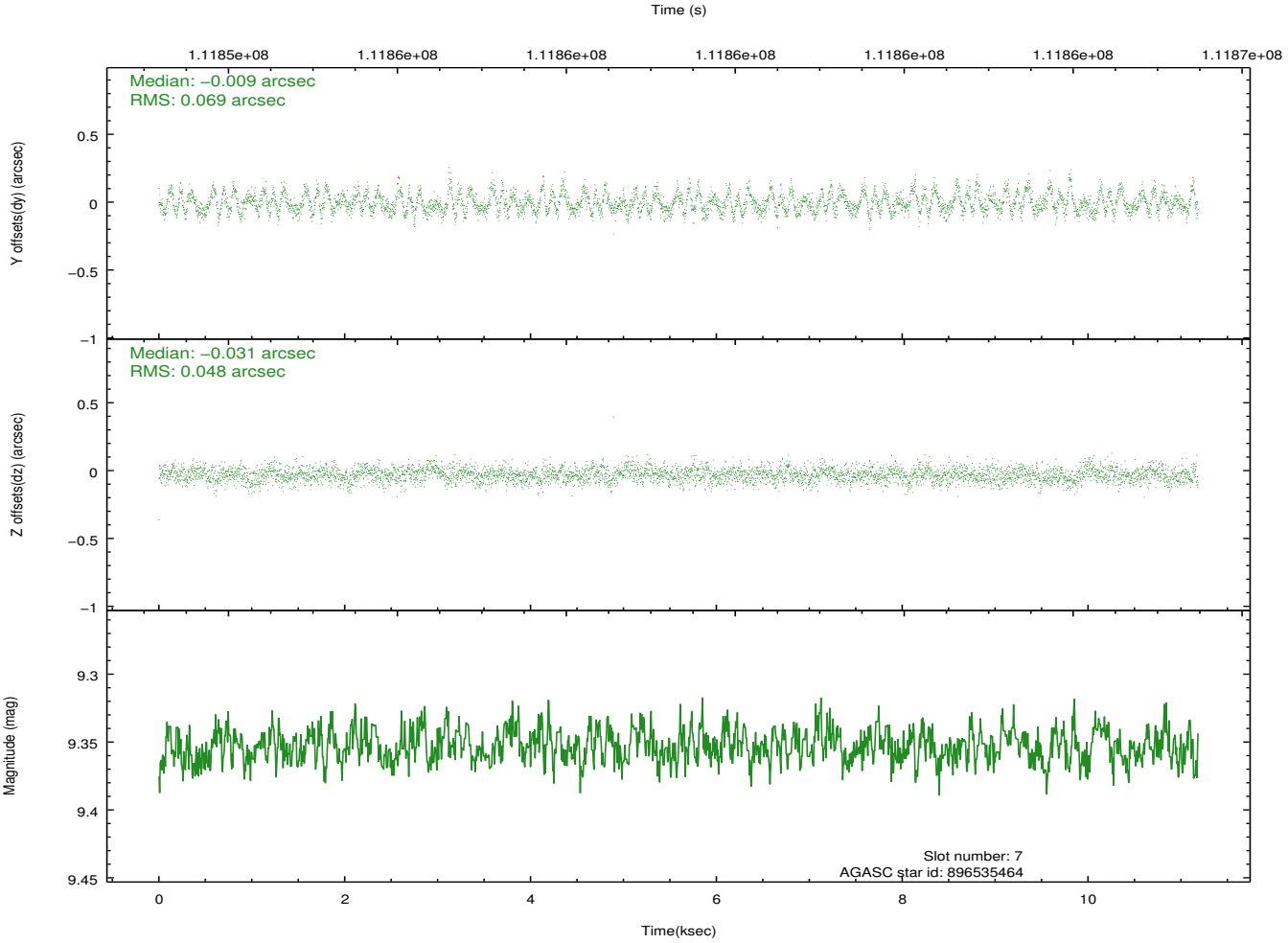

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.137 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 896536320


Time (s)
Median: 0.129 arcsec
RMS: 0.045 arcsec
Y offsets(dy) (arcsec)
Median: 0.047 arcsec
RMS: 0.039 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 896536320
Time(ksec)

2.4.5 Slot 7

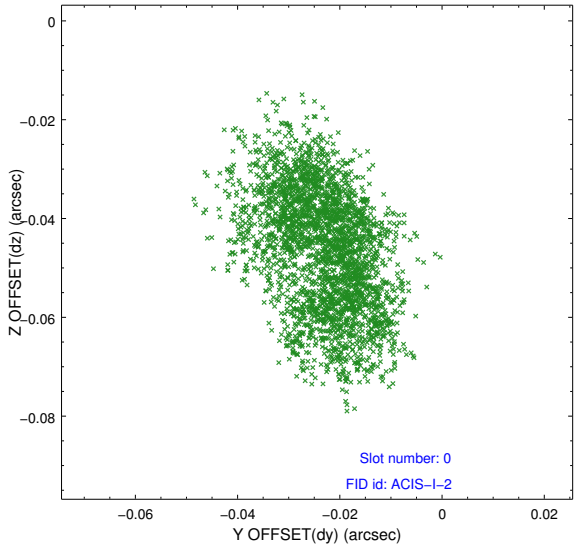

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 896535464

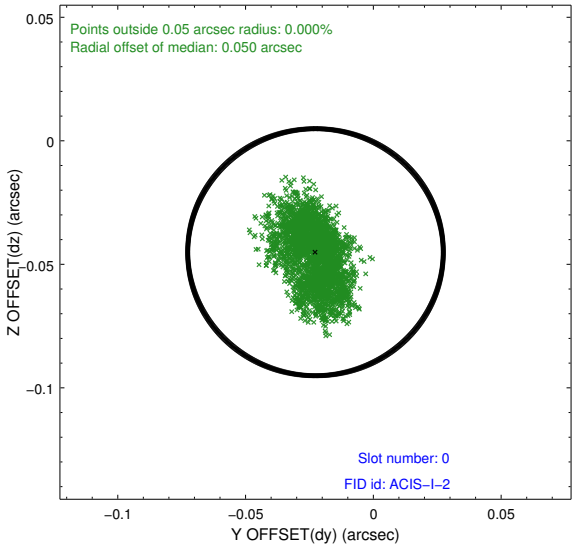

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.033 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 896535464

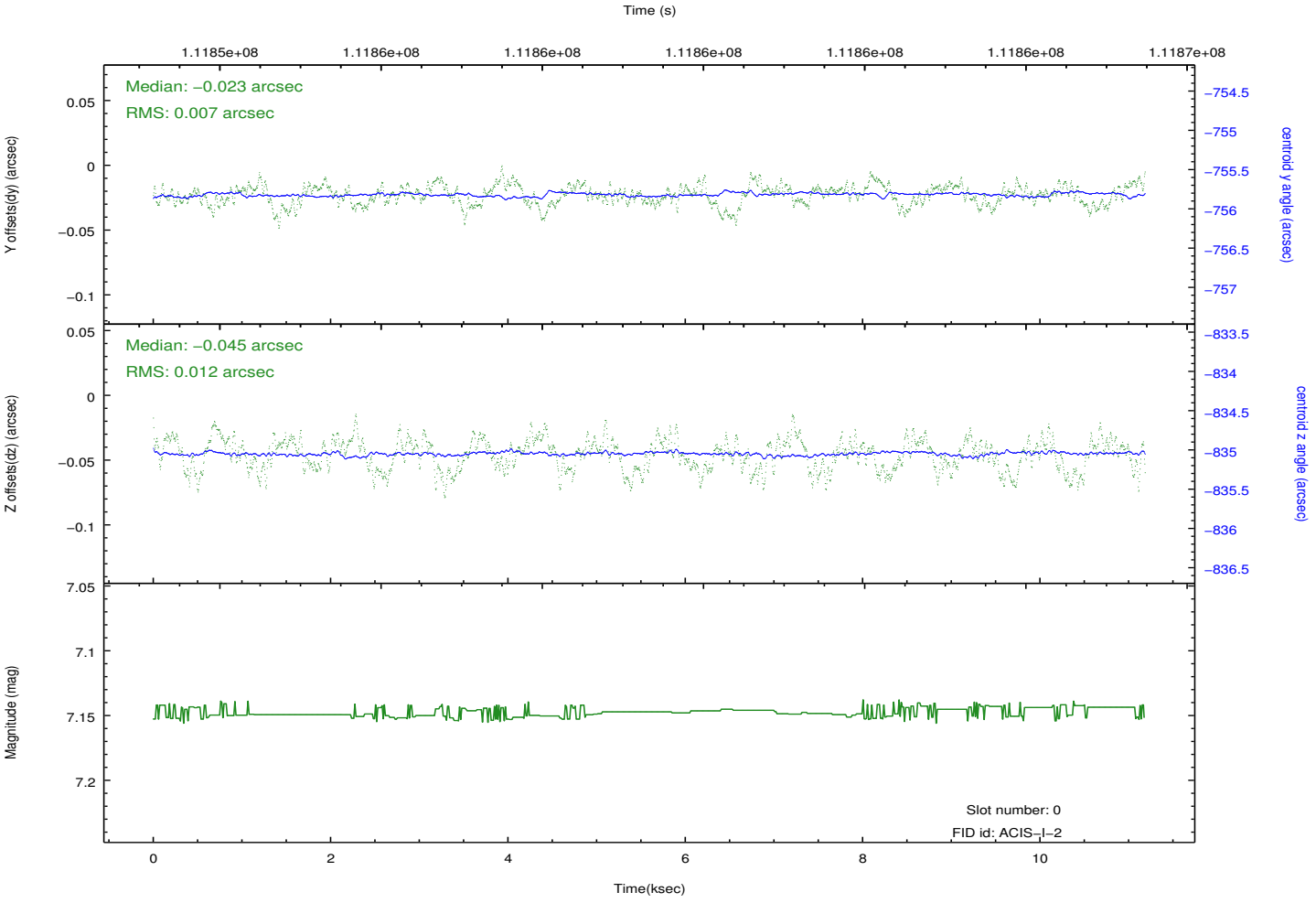

Time (s)
Median: −0.009 arcsec
RMS: 0.069 arcsec
Y offsets(dy) (arcsec)
Median: −0.031 arcsec
RMS: 0.048 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 896535464
Time(ksec)

2.5 FID Slots

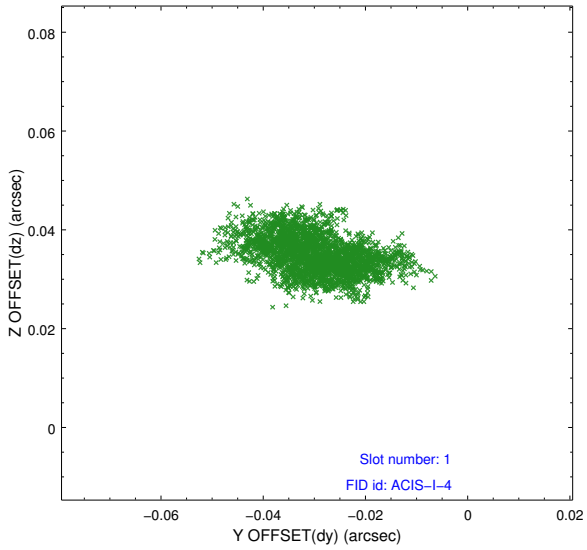
2.5.1 Slot 0

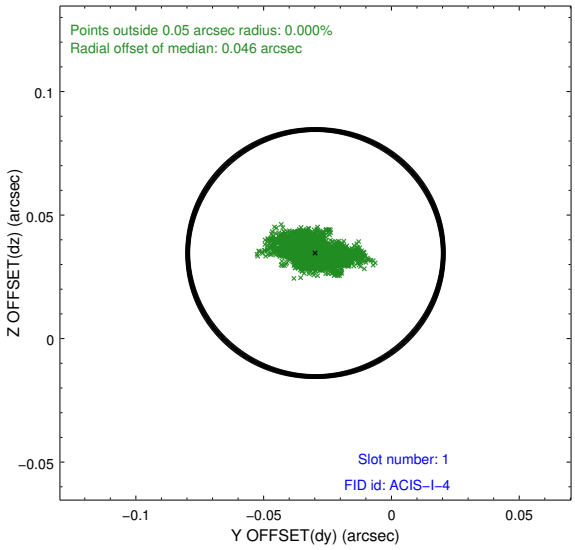


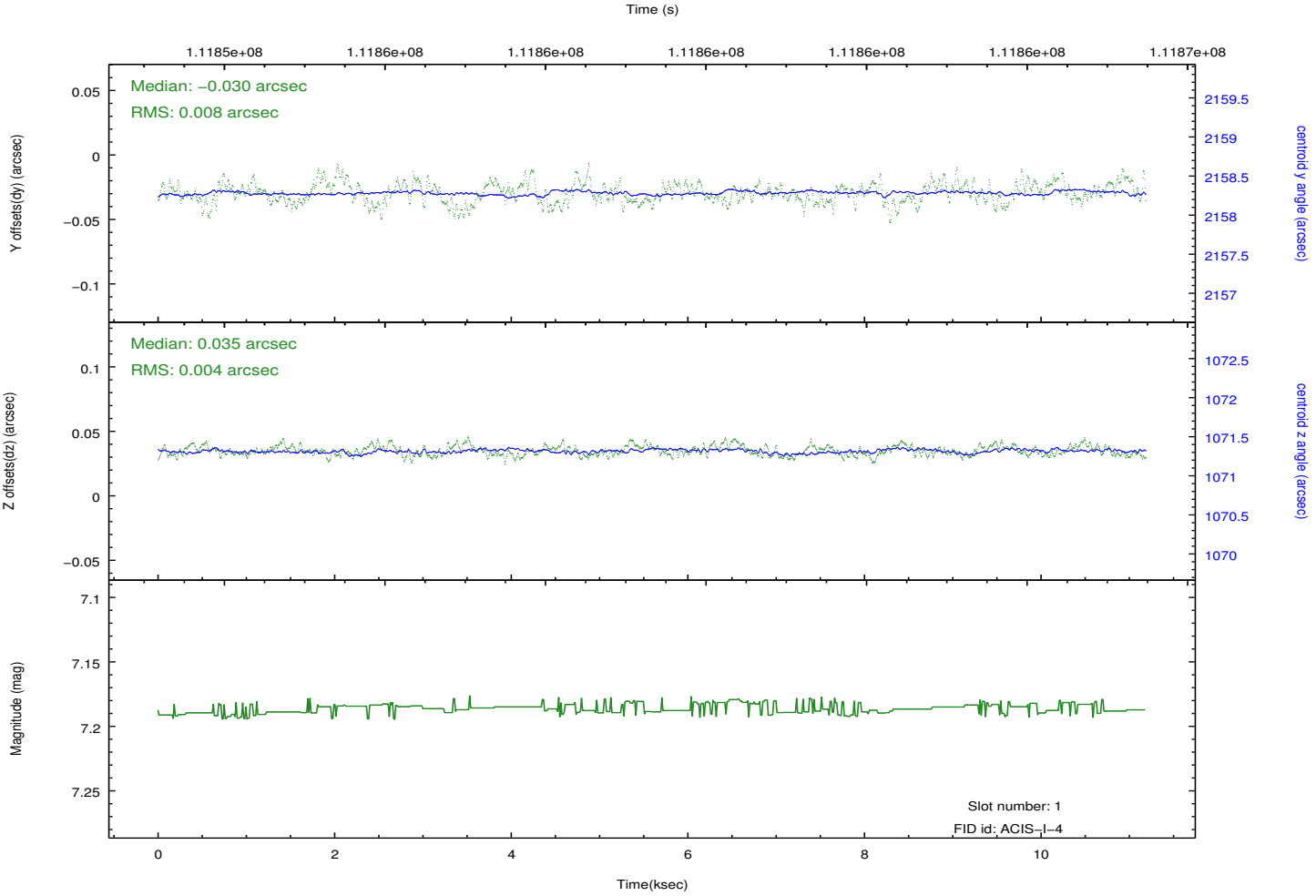




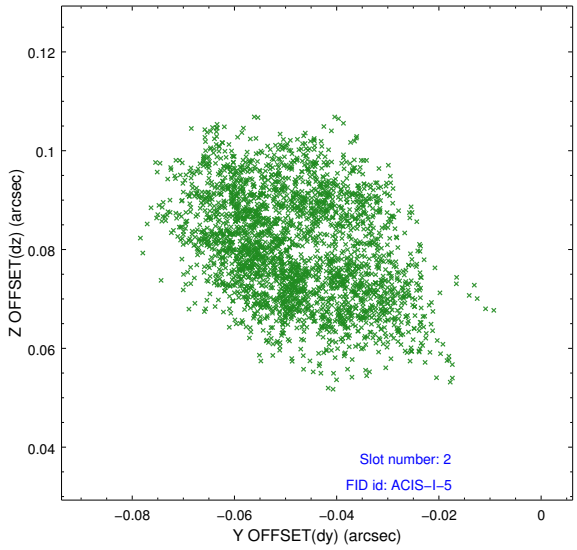
2.5.2 Slot 1

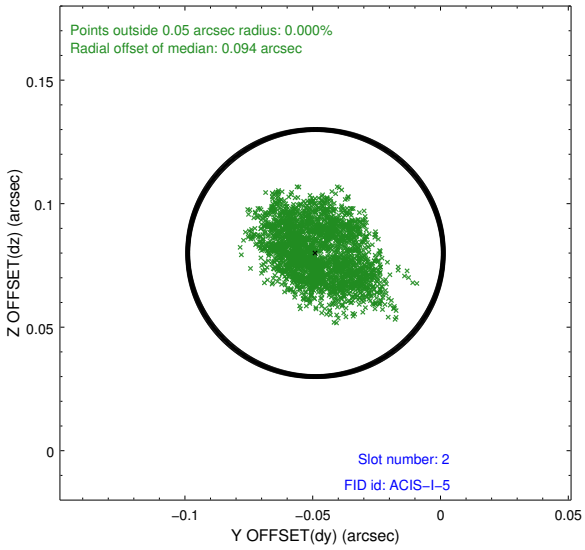

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−4

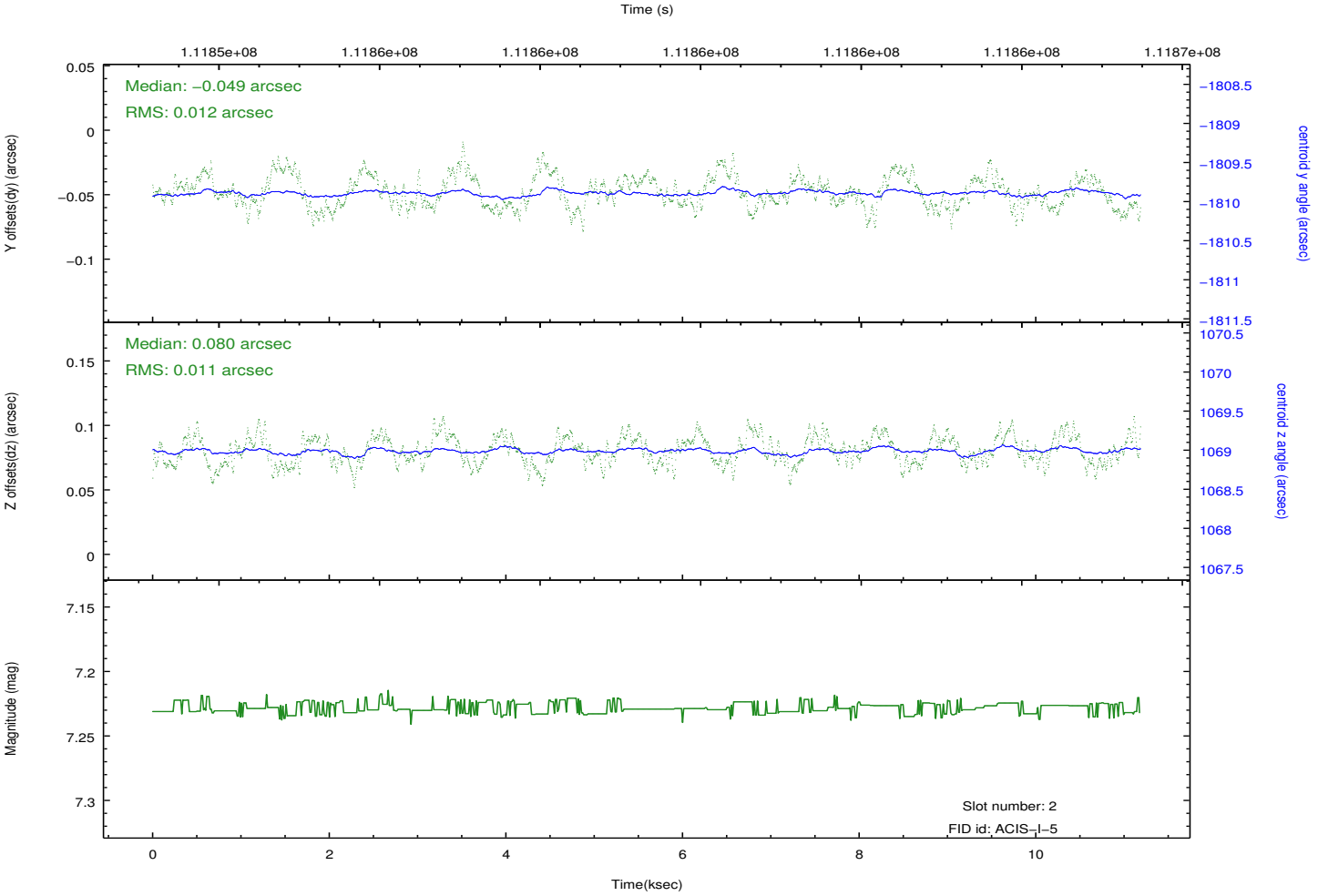

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.046 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−4


Time (s)
Median: −0.030 arcsec
RMS: 0.008 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.035 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS−I−4
Time(ksec)

2.5.3 Slot 2


Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−5


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.094 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−5


Time (s)
Median: −0.049 arcsec
RMS: 0.012 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.080 arcsec
RMS: 0.011 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−I−5
Time(ksec)

A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2012.10.25
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.761

A.2 Comments

```
Roll constraint met.
==========
A spatial region of the original bias map for CCD = 1 suffered from
anomalously high data values. Pixels in the event data that were
bias-corrected by one of the original affected bias pixels may have an
apparent energy shift. While the change in energy is expected to be
small (~20 eV), it depends on many parameters that have not yet been
fully explored for this bias anomaly. The bias map for CCD = 1 has been
reconstructed for this processing to remove this anomaly using scaled
data from a comparable bias map from another observation. The pixels
affected by the anomaly are bounded by sky coords:
(266.29357,-28.82482),(266.28934,-28.82573),(266.29375,-28.84149),(266.2
9798,-28.84058)
```